National Institute of Environmental Health Sciences

# Comparison between two methods of defining heat waves: A retrospective study in Castile-La Mancha (Spain)

**Author(s):** Montero JC, Miron IJ, Criado JJ, Linares C, Diaz J
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**Abstract:**

INTRODUCTION: Following the 2003 heat wave, many European countries implemented heat-wave prevention plans. A number of aspects can prove fundamental in determining the effectiveness of such plans, and of these we sought to analyse the criteria used to define threshold temperatures and trigger a higher level of intervention. METHOD: Retrospective study of the days on which heat-wave thresholds were exceeded during the period 1974-2003 was conducted. We compared when and at what level the heat-wave prevention plan would have been activated using a statistical-meteorological criterion (as applied by the Spanish Ministry of Health & Consumer Affairs) versus a temperature-mortality criterion. RESULTS: The number of days on which the threshold was exceeded was far higher when the temperature-mortality criterion was applied. The temperature percentile at which a heat wave occurred was different for each province analysed and was inversely proportional to its respective ageing index. Using both criteria, there was an increase in heat-wave days per decade. CONCLUSION: The establishment of a heat-wave threshold temperature must be based on knowledge of the cause-effect relationship between temperature and the health of a given population. Mortality is an appropriate indicator of population health. The future effects of climate change render it essential for this relationship to be studied on a local scale, so as to enable truly efficient prevention plans to be drawn up.

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## Resource Description

**Early Warning System:**

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

**Exposure :**

weather or climate related pathway by which climate change affects health

Temperature

**Temperature:** Extreme Heat

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:** ☑

resource focuses on specific location

Non-United States

**Non-United States:** Europe

**European Region/Country:** European Country

**Other European Country :** Spain

**Health Impact:** ☑

specification of health effect or disease related to climate change exposure

Injury

**Intervention:** ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

**Mitigation/Adaptation:** ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

**Resource Type:** ☑

format or standard characteristic of resource

Research Article

**Resilience:** ☑

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

**Timescale:** ☑

time period studied

Time Scale Unspecified